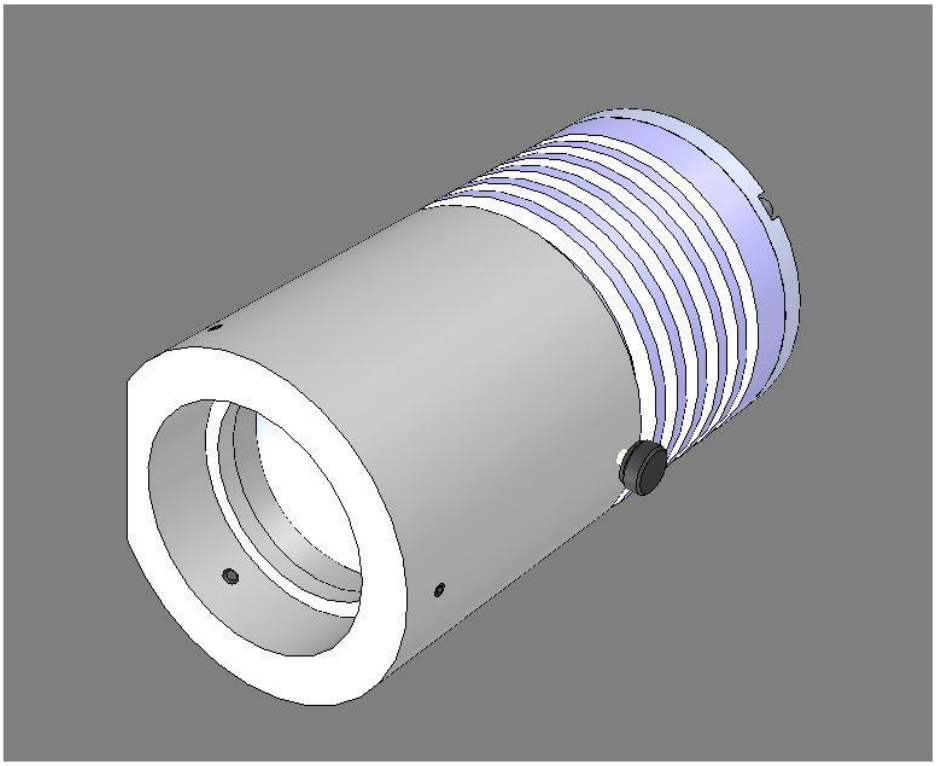
Brightfield LED

LDB100/LDB101



Manual Version 1.01

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SECTION 1 IMPORTANT SAFETY INFORMATION

SAFETY WARNINGS

Always observe the following safety precautions

- Before using the illumination system, please follow and adhere to all warnings, safety and operating instructions located on the product and in this User Manual.
- Use only as specified by these operating instructions or the intrinsic protection provided by the unit may be impaired.
- It is safe for use in an ambient temperature from 5 to 40°C with relative humidity to 80% up to 31°C decreasing linearly to 50%rH at 40°C.
- **Do not** expose the product to water or moisture while energised.
- **Do not** allow moisture to penetrate openings in the case. If this occurs allow the unit to dry out unpowered before switching on again
- **Do not** expose the product to extreme hot or cold temperatures.
- **Do not** expose the product to open flames.
- **Do not** allow objects to fall on or liquids to spill on the product.
- **Do not** replace detachable mains supply cords by inadequately rated cords.
- **Do not** cover or impede ventilation to this system.
- **Do not** stare into the light output of the LED units.
- Connect the AC power cord only to designated power sources as marked on the product.
- Make sure the electrical cord is located so that it will not be subject to damage.
- Make sure the system in installed so that the reaer panel power switch is easily accessible.
- For use in a manner not specified in this manual contact Prior before any work is done.
- To reduce the risk of damage, unplug the product from the power source before connecting the components together.
- **DANGER** - never alter the AC cord or plug. If the plug will not fit into the outlet, have a proper outlet installed by a qualified electrician.
- Only suitably rated and approved mains cord-sets should be used as per the country of use.
- Use only the proper type of power supply cord set (provided with the system) for this unit.
- **Do not** attempt to disassemble the product. Doing so will void the warranty. This product does not contain consumer serviceable components. Service should be performed by Authorised Service Centres.

- Only the exterior of this product should be cleaned using a damp lint-free cloth.
- This warning symbol indicates that the surface may be hot.

Save this manual as it contains important safety information and operating Instructions

SECTION 2 IDENTIFYING YOUR SYSTEM

There are two variants to the Prior Brightfield LED system.

The LDB100 system is powered directly from a Prior controller (OptiScan or ProScan) with active shutter connectors. The power and control are provided by the shutter cable from the Prior controller to the LED Body. You must have a Prior controller to use this version of the Brightfield LED.

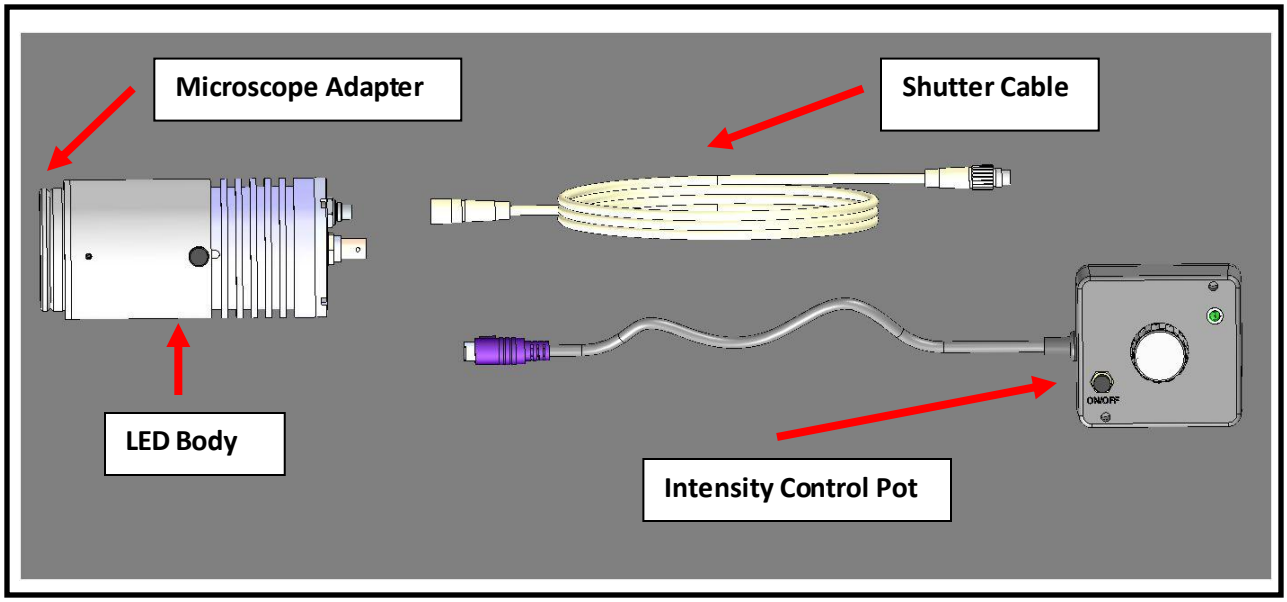
The LDB101 comes with a stand alone power supply; this allows the unit to be operated with out the need of a Prior controller. The unit is powered directly from the mains supply. This version can be used without the need for a Prior controller.

NOTE – It is important to connect all parts before powering on the units.

2.1 Identifying the parts of the LDB100 System

The LDB100 consists of:
1 off, Main LED body
1 off, Microscope Adapter.
1 off Intensity Control Pot
1 off Prior Shutter cable

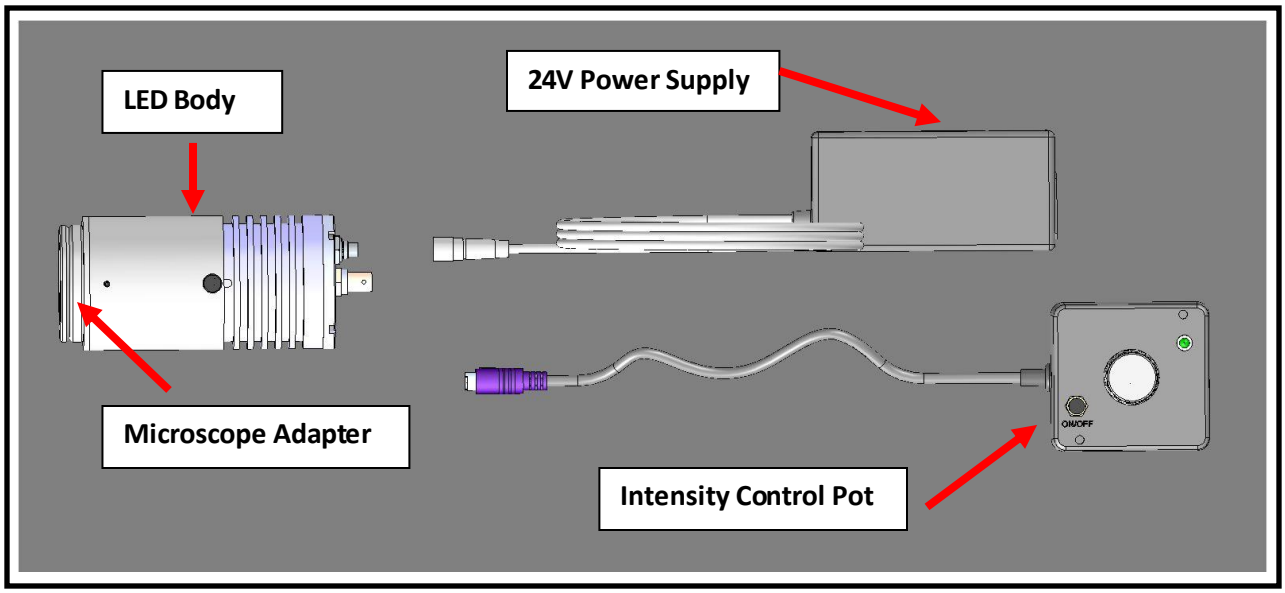
Fig 1 – LDB100



2.2 Identifying the parts of the LDB101 System

The LDB101 consists of:
1 off, Main LED body
1 off, Microscope Adapter.
1 off Intensity Control Pot
1 off 24Volt Power supply & mains cable.

Fig 2 – LDB101



SECTION 3 WORKING WITH YOUR SYSTEM

The Brightfield LED can be controlled either manually or under software control, (using 3rd party software).

Both the LDB100 and LDB101 are supplied with a manual intensity control pot. Intensity is regulated by turning the dial clockwise to increase intensity and anticlockwise to decrease intensity. The LED light can also be turned on and off via and integrated toggle switch on the intensity control pot.

3.1 The Brightfield LED as a Stand-alone Lightsource.

This option only allows for manual control of the LED via the Intensity control pot.

3.1.1 Installation

- Connect Intensity Control Pot to the socket on the LED Head. (See system Diag. 1)
- Connect the 24V power supply to the socket on the LED Head, and plug in mains cable.
- Turn on mains switch to give power to the LED Head, and Intensity Control Pot.

  On/Off button on the Intensity Control Pot Assembly maintains the on or off condition before and after the cycling of mains power. The Power Indicator LED (see fig 3) will be lit if the toggle switch is in the ON position. If the mains power is on and the Power Indicator LED is not illuminated, please press the ON/OFF toggle switch make the control pot active.

- Use the Intensity Control Pot to set the light levels required.

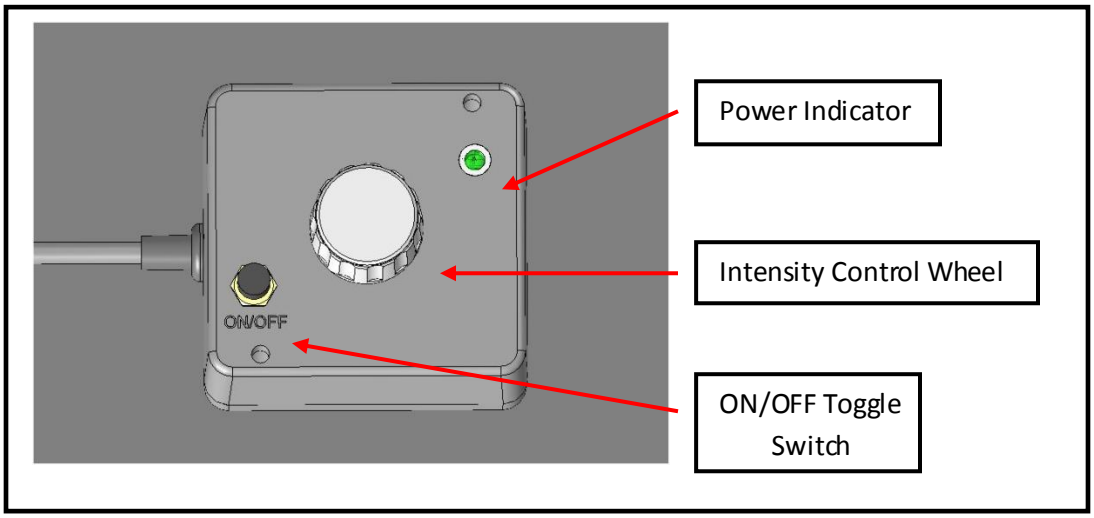
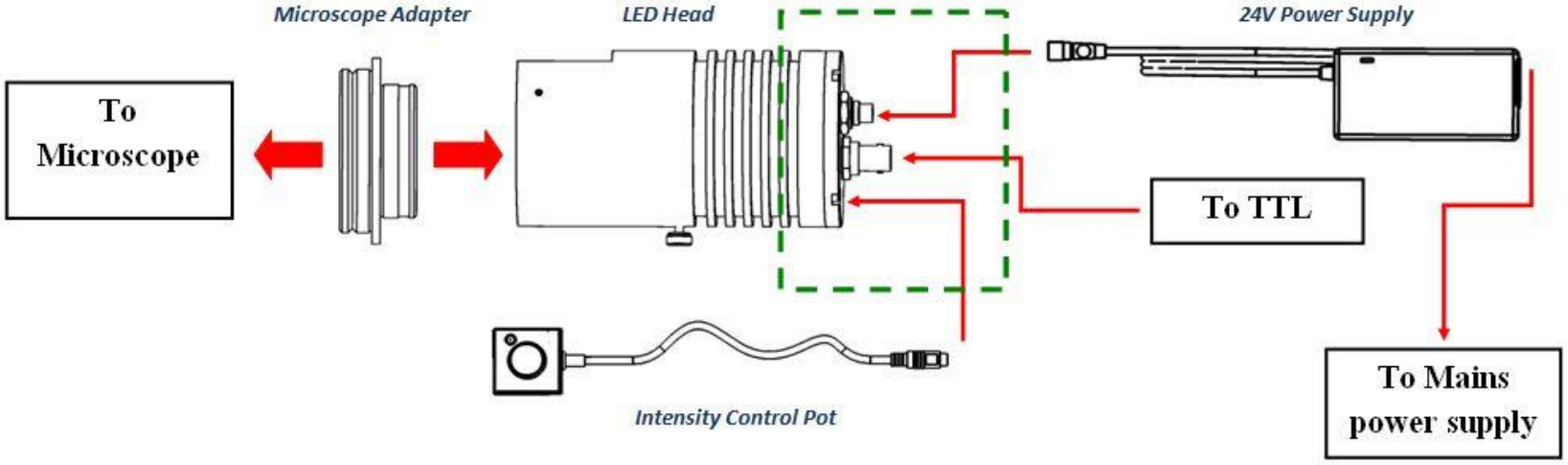
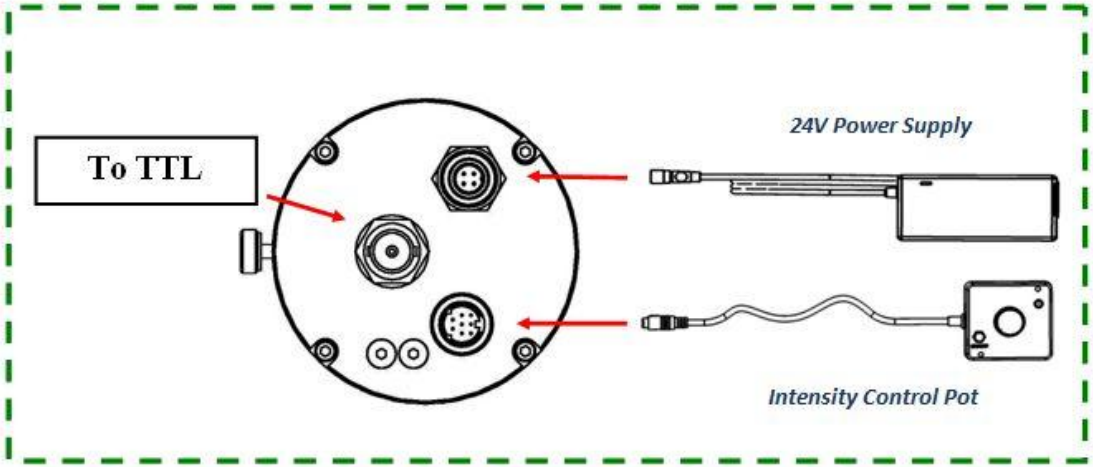


Fig 3 – Intensity Control Pot





System Diagram 1
LDB101

Brightfield LED powered directly from mains supply. Use this set up for manual control only.

The Prior LDB100/101 will fit Nikon Ti, 80i, 90i microscopes without the need for a microscope adapter.

3.2 The Brightfield LED with a Prior controller (Proscan or Optiscan).

Using this set up allows for either manual control of the LED via the intensity control pot or via software control through the Prior controller.

Through software control the LED can be turned on and off via the standard Prior shutter commands. LED illumination intensity can not be adjusted via software control.

3.2.1 Installation

- Connect Intensity Control Pot to the socket on the LED Head. (See system Diag. 2)
- Connect one end the Prior shutter cable the socket on the LED Head, and the other end to and available Shutter port on the back of the controller. Make a note of the shutter port for use in any software control of the system.
- Turn on Prior controller to give power to the LED Head, and Intensity Control Pot.

  On/Off button on the Intensity Control Pot Assembly maintains the on or off condition before and after the cycling of mains power. The Power Indicator LED (see fig 4) will be lit if the toggle switch is in the ON position. If the mains power is on and the Power Indicator LED is not illuminated, please press the ON/OFF toggle switch make the control pot active.

- Use the Intensity Control Pot to set the light levels required.

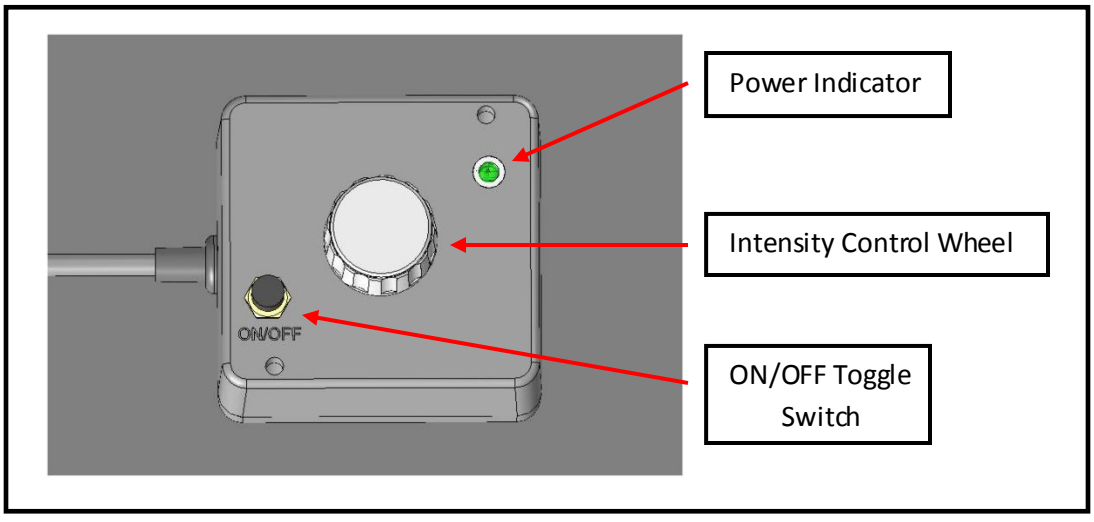
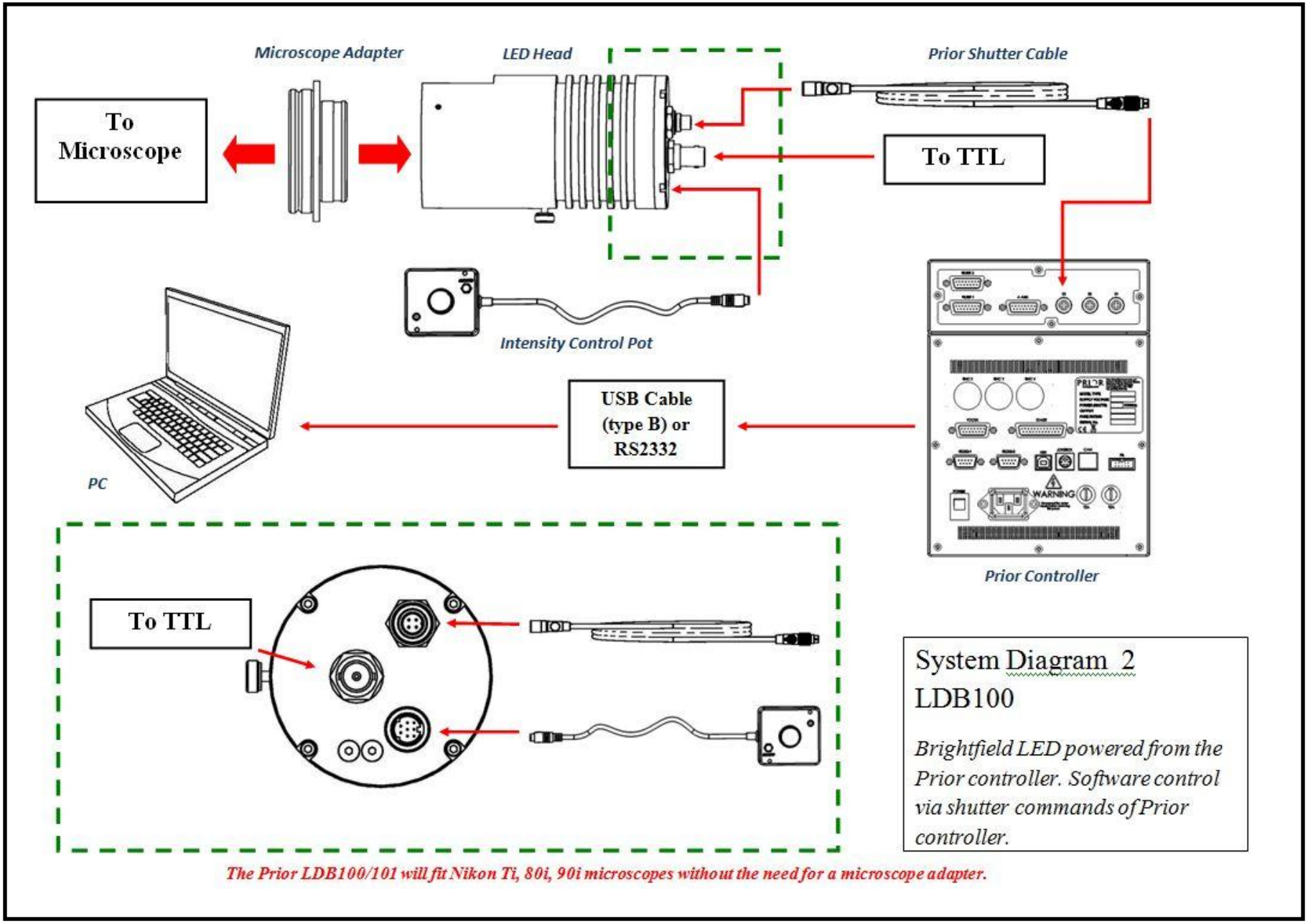


Fig 4 – Intensity Control Pot



System Diagram 2
LDB100

Brightfield LED powered from the Prior controller. Software control via shutter commands of Prior controller.

The Prior LDB100/101 will fit Nikon Ti, 80i, 90i microscopes without the need for a microscope adapter.

3.3 The Brightfield LED with a Prior LDBUSBTTL converter.

Using this set up allows for either manual control of the LED via the intensity control pot or via software control through the LDBUSBTTL converter. The LDBUSBTTL emulates a Prior Proscan controller with 1 shutter port.

Through software control the LED can be turned on and off via the standard Prior shutter commands. LED illumination intensity can not be adjusted via software control.

3.3.1 Installation

- Connect Intensity Control Pot to the socket on the LED Head. (See system Diag. 3)
- Connect a BNC-BNC cable to the TTL port on the LED Head, and the other end to the TTL socket on the LDBUSBTTL.
- Connect the USB (Type B) cable to the LDBUSBTTL and the other to a free USB slot on your PC.
  The LDBUSBTTL may need to have drivers installed for it to be recognised by the PC. (See section 3.6 Connecting a LDBUSBTLL to a PC)
- Turn on mains switch to give power to the LED Head, and Intensity Control Pot.

  On/Off button on the Intensity Control Pot Assembly maintains the on or off condition before and after the cycling of mains power. The Power Indicator LED (see fig 5) will be lit if the toggle switch is in the ON position. If the mains power is on and the Power Indicator LED is not illuminated, please press the ON/OFF toggle switch make the control pot active.

- Use the Intensity Control Pot to set the light levels required.

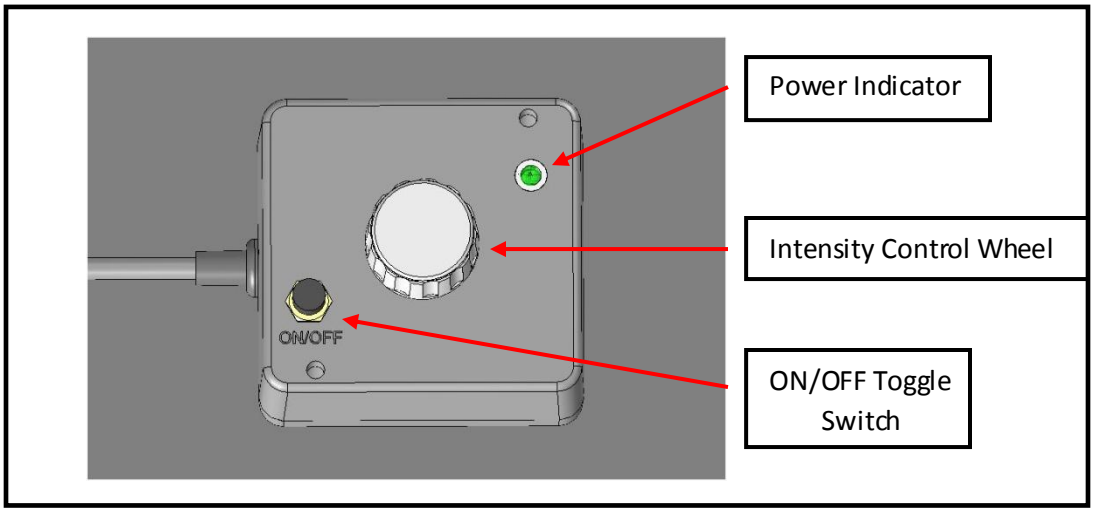
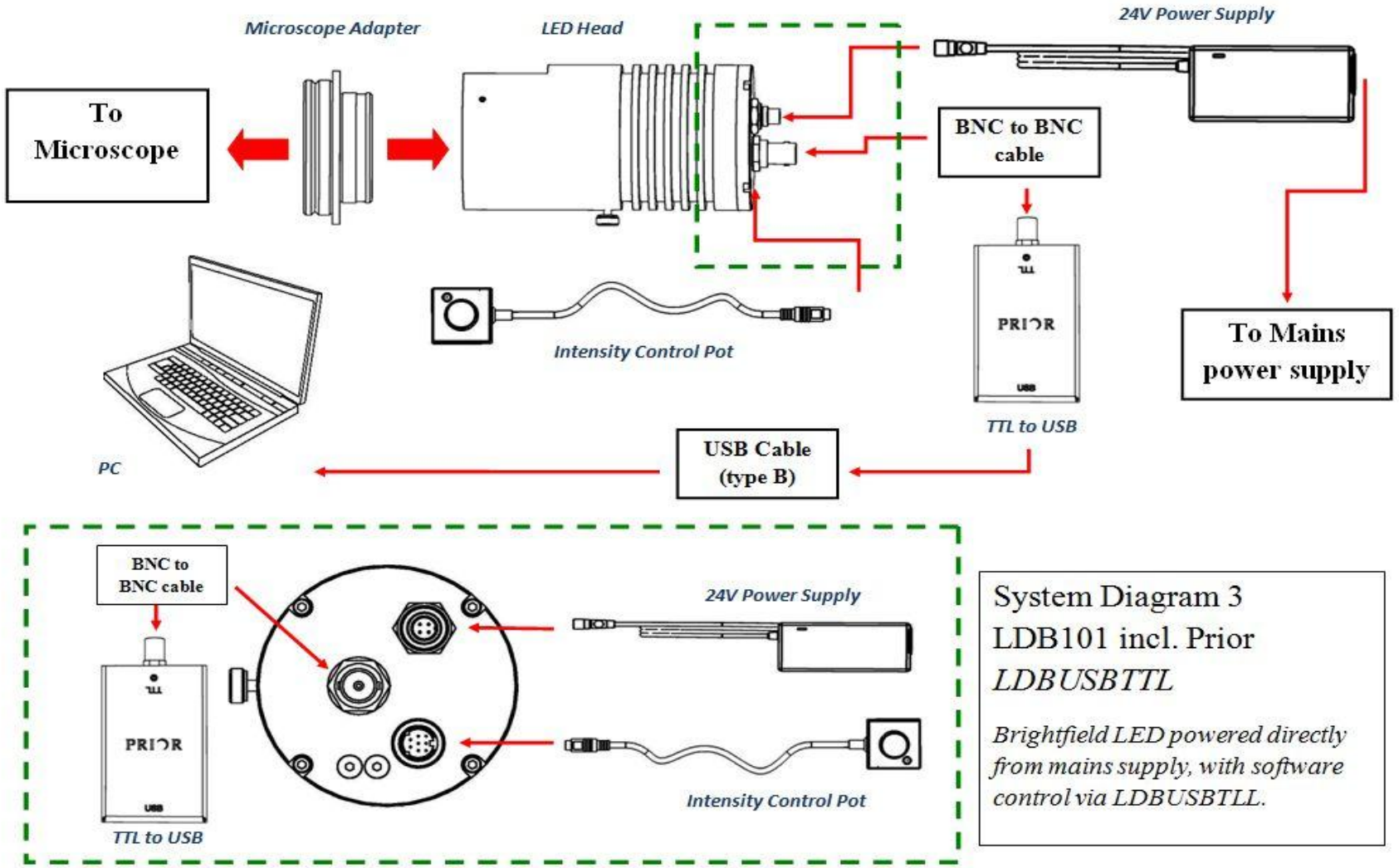


Fig 5 – Intensity Control Pot


Microscope Adapter
LED Head
24V Power Supply
To Microscope
BNC to BNC cable
Intensity Control Pot
To Mains power supply
TTL to USB
PC
USB Cable (type B)
BNC to BNC cable
24V Power Supply
Intensity Control Pot
TTL to USB
System Diagram 3
LDB101 incl. Prior
LDBUSBTTL
Brightfield LED powered directly from mains supply, with software control via LDBUSBTLL.
The Prior LDB100/101 will fit Nikon Ti, 80i, 90i microscopes without the need for a microscope adapter.

3.4 Adjustments to Brightfield LED

The Brightfield LED can be adjusted to obtain an even illumination.

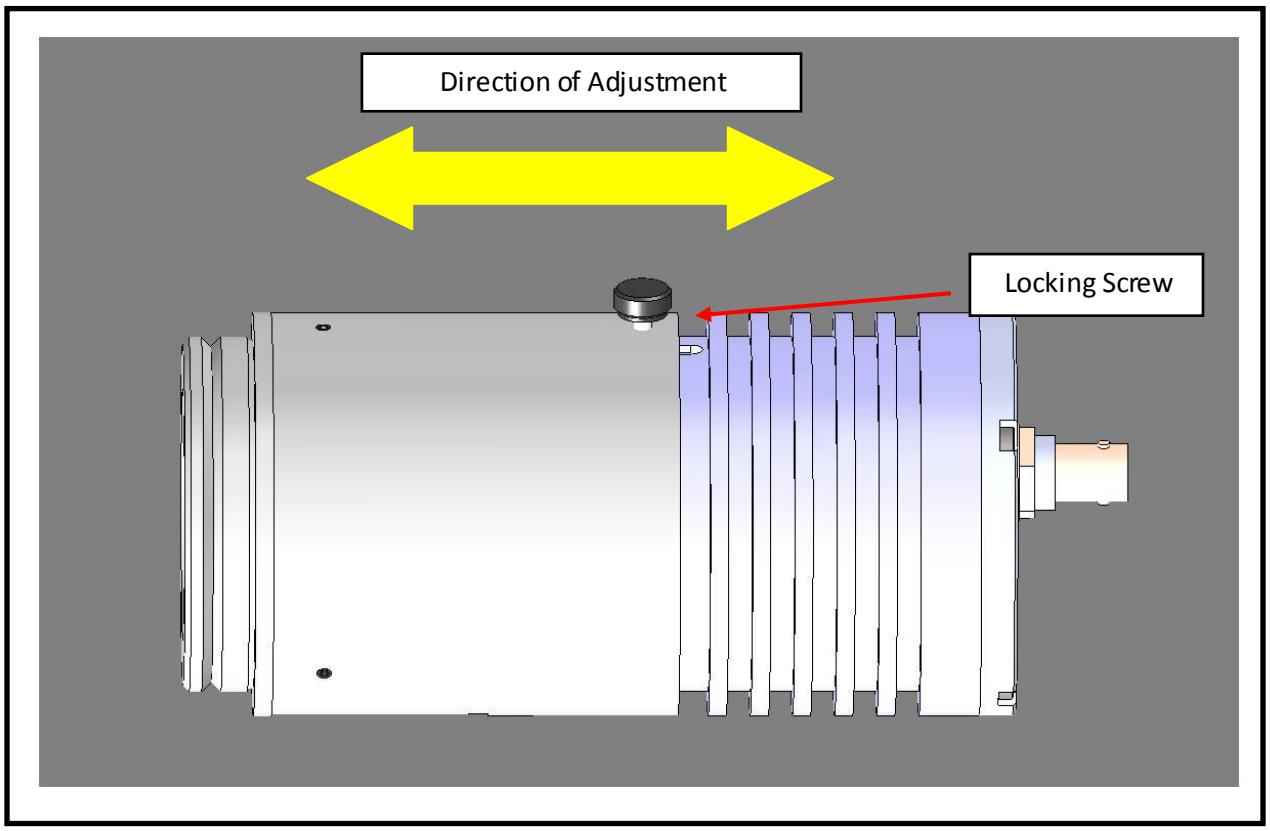


Fig 6 – Intensity Control Pot

1. Turn on LED
2. Loosen the Locking Screw
3. Move the lead head back and forth along the direction of travel, as indicated in Fig 6. Until you achieve an even illumination.
4. Tighten the Locking Screw.

3.5 Changing the Microscope Adapter

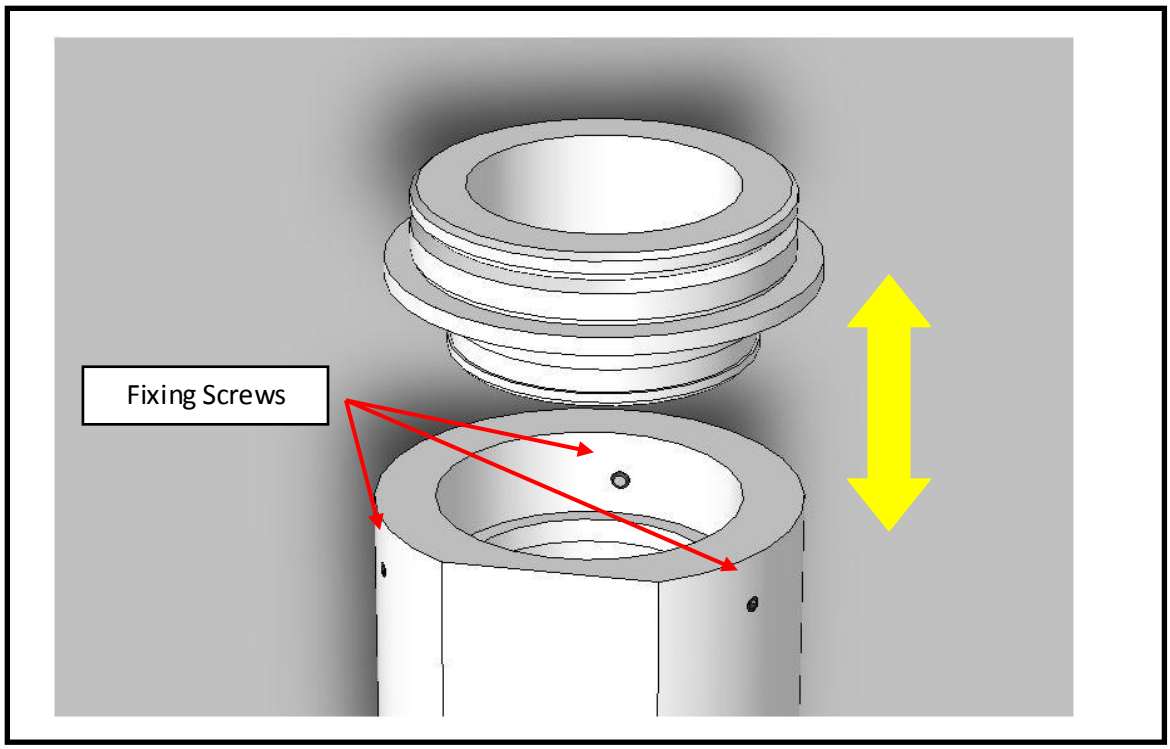


Fig 7 – Intensity Control Pot

1. Loosen the 3 fixing screw
2. Remove adapter and replace with new adapter.
3. Tighten the 3 fixing screws.

3.6 Connecting a LDBUSBTTL to a PC

The LDBUSBTTL will emulate a Prior Proscan controller with one shutter connected, and can be set up in 3rd party software this way.

LDBUSBTTL may require a driver to be installed, if so, then please go the following section on the Prior Scientific website and download PL200/ES10ZE USB Drivers;

http://www.prior.com/downloadcentre/dc_software.html

3.6.1 Installing the LDBUSBTTL in Windows 7

Plug in the USB cable to the LDBUSBTTL and the computer, Windows 7 should automatically recognize the device and install the appropriate drivers.

3.6.2 Installing the LDBUSBTTL in Windows XP

Plug in the USB cable to the LDBUSBTTL and the computer;

When prompted select No, not at this time, then click NEXT.

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).
Read our privacy policy
Can Windows connect to Windows Update to search for software?
Yes, this time only
Yes, now and every time I connect a device
No, not this time
Click Next to continue.
< Back
Next >
Cancel

Fig 8

Select “Install from a list or specific location (advanced)”

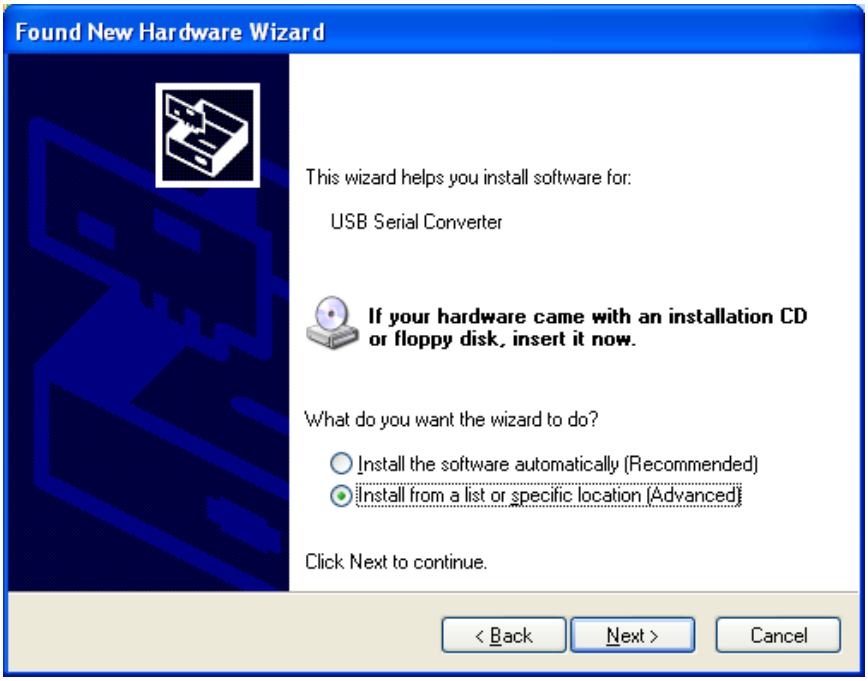

Found New Hardware Wizard
This wizard helps you install software for:
USB Serial Converter
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

Fig 9

Browse to the location of Eval232R, click NEXT.

Fig 10

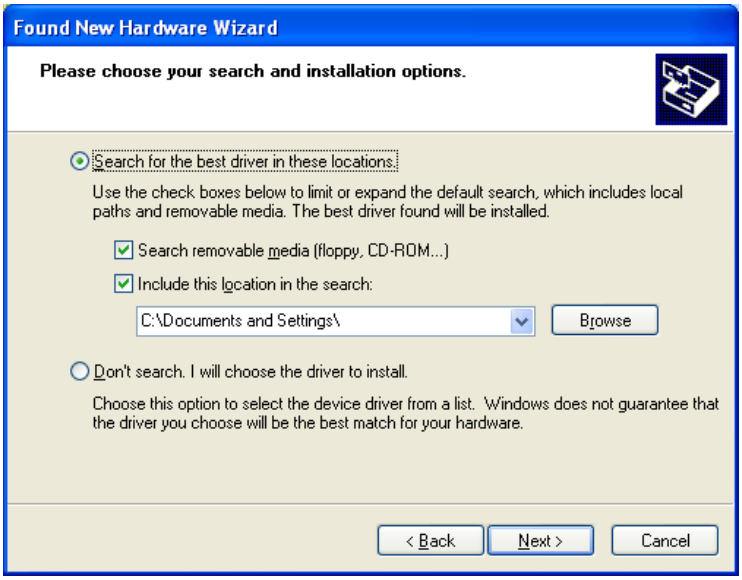

Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
C:\Documents and Settings\
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

Fig 11

The Eval232R folder can be found in the SDK. This can be downloaded from www.prior.com.

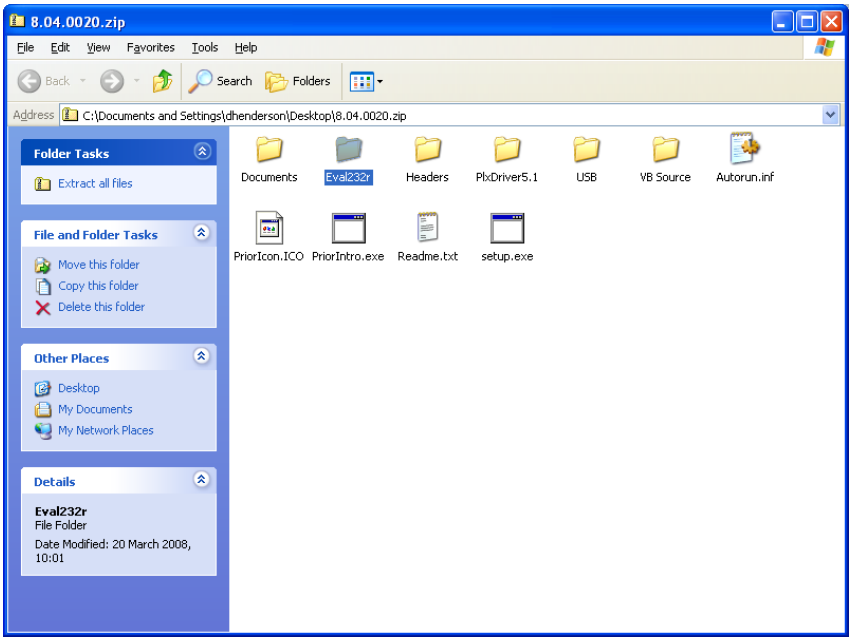


Fig 12

Contents of SDK.

Fig 13

Click Finish.

SECTION 4 SOFTWARE COMMANDS

You can use the following commands if connected via the Prior controller (ProScan or Optiscan). The Brightfield LED uses the same command set as the Prior Shutter.

Command	Argument	Response	Description
?	None	Text String	Reports information about the peripherals currently connected to the controller. e.g. DRIVE CHIPS 10011 means Z and 4th axis chips missing, SHUTTERS = 110 means shutter 1 not connected. The final line of information is always a line saying END. This allows for the addition of extra fields of information without effecting application software. Users should always read lines in until the END is seen. A typical response is shown below: PROSCAN INFORMATION DSP_1 IS 4-AXIS STEPPER VERSION 2.7 DSP_2 IS 2-AXIS STEPPER VERSION 2.7 DRIVE CHIPS 010111 (F2 F1 A Z Y X) 0 = Not Fitted JOYSTICK ACTIVE STAGE = H101/2 FOCUS = NORMAL FILTER_1 = NONE FILTER_2 = HF110-10 SHUTTERS = 001 (S3 S2 S1) 0 = Not Fitted AUTOFOCUS = FITTED VIDEO = NONE END
8	s,c	R If LED is not fitted E,20 will be returned	Turns on or off the LED s (value ‘1’, ‘2’ or ‘3’, If c = 0 the LED is on If c = 1 the LED is off.
8	s	c If LED is not fitted E,20 will be returned	Returned the status c of the LED s
Shutter	s	0,1	Prints information about LED ‘s’. The information end is always a line saying END. This allows for the addition of extra fields of information without effecting application software. Users should always read lines until the END is seen in order to maintain compatibility. Example SHUTTER_1=NORMAL DEFAULT_STATE=CLOSED END

You can use the following commands if connected via the Prior LDBUSBTTL.

Command	Argument	Response	Description
?	None	Text String	Reports information about the peripherals currently connected to the controller. The information end is always a line saying END This allows for the addition of extra fields of information without effecting application software. Users should always read lines in until the END is seen. A typical response from LDBUSBTTL is shown below PROSCAN INFORMATION DSP_1 IS NOT FITTED DSP_2 IS 3 AXIS STEPPER VERSION 0.0 DRIVE CHIPS 111000 JOYSTICK NOT FITTED STAGE = NONE FOCUS = NONE FOURTH = NONE FILTER_1 = NONE FILTER_2 = NONE SHUTTERS = 001 LED = 0000 AUTOFOCUS = NONE VIDEO = NONE HARDWARE REV A END
VER	None	Text String	Returns the version of the code fitted to the unit. Eg. USBTTLinterfaceV1.3
8	s,c	R If LED is not fitted E,20 will be returned	Turns on or off the LED s (value '1') If c = 0 the LED is on If c = 1 the LED is off.
8	s	c If LED is not fitted E,20 will be returned	Returned the status c of the LED s

SECTION 5 REPLACEMENT & SPARE PARTS

W2288	Shutter Cable
W4114	24Volt Power Supply
LM317	Intensity Control Pot

Microscope Adapters

LM685	Olympus Microscope Adapter.
LM686	Leica Microscope Adapter.
LM687	Zeiss Microscope Adapter.

The Prior LDB100/101 will fit Nikon Ti, 80i, 90i microscopes without the need for an additional adapter.

SECTION 6 SERVICING

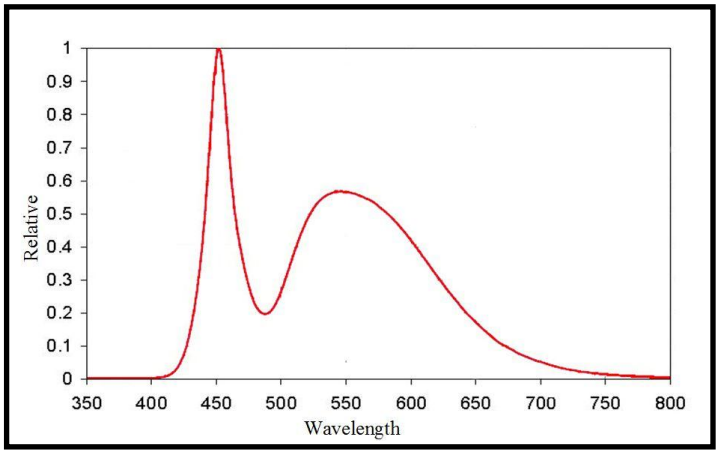
This equipment contains no user-serviceable parts. Refer all repairs to qualified service personnel.

Opening the product voids the warranty.

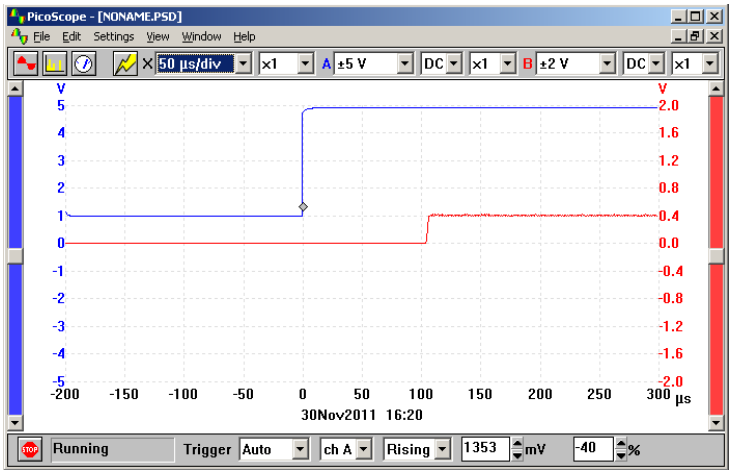
For approved service outlets contact your nearest Prior office..

SECTION 7 TECHNICAL SPECIFICATIONS

Relative Spectral Distribution



TTL Switching time for Brightfield LED – 100usec



SECTION 8 RETURNS AND REPAIRS

Should you experience problems with your LumenLED System and want to send it back for service, warranty or otherwise, a Return Material Authorisation (RMA) number must be obtained from the appropriate Prior Scientific office before returning any equipment.

For North and South America contact Prior Scientific Inc., for Japan contact Prior KK, for Germany, Austria and Switzerland contact Prior GmbH and for the all other countries contact Prior Scientific Instruments Limited on the telephone numbers shown below.

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